

Docket No.: 09669/086001
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Van Tai Ngo et al.

Confirmation No.: 1360

Application No.: 10/581,130

Art Unit: 2185

Filed: May 31, 2006

Examiner: M.A. Giardino

For: **METHOD TO CONTROL THE ACCESS IN A
FLASH MEMORY AND SYSTEM FOR THE
IMPLEMENTATION OF SUCH A METHOD**

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 CFR § 41.37, please consider the following Appellants' Brief in the referenced application currently before the Board of Patent Appeals and Interferences ("the Board"). This brief is filed within one month from the mailing date of the Decision on Pre-Appeal Brief Review.

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I. REAL PARTY IN INTEREST

The real party in interest for this appeal is Gemalto S.A. Gemalto S.A. was formerly known as Axalto S.A. The full corporate name was changed from Axalto S.A. to Gemalto S.A. in October 2008. To date, the aforementioned change of name has not been recorded with the USPTO. An Assignment transferring all interest in the referenced application from the inventors to Axalto S.A. was previously recorded by the USPTO on July 12, 2006. The Assignment is recorded at Reel 017917, Frame 0272.

II. RELATED APPEALS AND INTERFERENCES

To the best of the knowledge of the Appellants and Appellants' legal representative, there are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 12 claims pending in application.

B. Current Status of Claims

1. Claims canceled: 2

2. Claims pending: 1 and 3-13

3. Claims rejected: 1 and 3-13

C. Claims On Appeal

The claims on appeal are claims 1 and 3-13.

IV. STATUS OF AMENDMENTS

Applicant did not file an Amendment After Final Rejection. Thus, all of the amendments have been entered and considered by the Examiner. The pending claims of record are presented in the Claims Appendix. The claims in the Claims Appendix include the amendments filed by the Applicant on March 14, 2008.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The following discussion summarizes the content of the claimed subject matter. The references to the Figures and Specification referenced below should not be construed as the only locations in the specification which support or discussion of the respective limitation.

Turning to the claims, independent claim 1 is directed to a method for controlling access to a sector of flash memory of an electronic module. *See e.g.*, Patent Application Publication, lines 1-3 of paragraph [0009] and Figure 3. The method involves receiving a write request to write data to an area of a partition located within the sector of flash memory. *See e.g.*, Patent Application Publication, lines 1-2 of paragraph [0008], lines 3-5 of paragraph [0009], lines 1-2 of paragraph [0019], lines 1-11 of paragraph [0020], and Figure 3. The method further involves making a first determination as to whether the owner of the data to be written has write access to the partition of the sector. *See e.g.*, Patent Application Publication, lines 3-4 of paragraph [0009] and lines 1-13 of paragraph [0019]. In one or more embodiments of the invention, this is achieved by comparing the identity of the page owner and the identity of the module trying to access the page. *See e.g.*, Patent Application Publication, lines 1-13 of paragraph [0019]. The method further involves making a second determination (hereinafter called the “second determination step”) as to whether the owner

of the data to be written has permission to erase the entire sector in which the partition is located. *See e.g.*, Patent Application Publication, line 1 of paragraph [0020] through line 6 of paragraph [0022].¹ The second determination is made using a rule that verifies that the write request does not delete the data of an owner other than the owner issuing the write request (*i.e.*, owner of the data to be written). *See e.g.*, Patent Application Publication, line 1 of paragraph [0020] through line 6 of paragraph [0022]. The method further involves the writing of the data to the partition when the first determination and the second determination allow the write request to proceed. *See e.g.*, Patent Application Publication, lines 1-7 of paragraph [0009] and lines 1-4 of paragraph [0020].

Independent claim 5 is directed to an electronic module including: (i) flash memory containing at least one sector that includes a partition; (ii) a memory manager operatively connected to the flash memory; and (iii) a set of rules used to determine whether an owner of data is granted permission to erase an entire sector. *See e.g.*, Patent Application Publication, lines 1-8 of paragraph [0010], lines 1-6 of paragraph [0015], line 1 of paragraph [0018] through line 11 of [0020], and Figure 3. The set of rules determines whether the owner has the permission to erase the entire sector based on verification that the erasure does not delete data belonging to another owner. *See e.g.*, Patent Application Publication, line 1 of paragraph [0022] through line 3 of paragraph [0030]. The memory manager is configured to: (i) receive a request to write data to an area of the partition; (ii) determine whether the owner of the data to be written has (a) write access to the partition and (b) permission to erase the entire sector according to the set of rules; and (iii) write the data to the partition when allowed by the determination. *See e.g.*, Patent Application Publication, lines 1-11 of paragraph [0020].

¹ In the context of the claim language, a sector encompasses the partition(s).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The present Appeal addresses the following grounds of rejection:

Whether claims 1, 3, 5-7, 9, 10 and 12 are patentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,154,819 (“Larsen”) in view of U.S. Patent No. 4,177,510 (“Appell”).

Whether claims 4, 11 and 13 are patentable under 35 U.S.C. § 103(a) over Larsen and Appell in view of U.S. Patent No. 6,401,160 (“See”).

Whether claim 8 is patentable under 35 U.S.C. § 103(a) over Larsen and Appell in view of U.S. Patent Application Publication No. 7,177,975 (“Toombs”).

For purposes of this Appeal, claims 1 and 3-13 stand or fall together. Independent claim 1 is representative of the group including claims 1 and 3-13.

VII. ARGUMENT

A. Examiner has failed to provide sufficient evidence of *prima facie* obviousness with respect to claims 1, 3, 5-7, 9, 10 and 12

The Examiner has failed to show sufficient evidence to establish a *prima facie* case of obviousness with respect to the pending claims. In maintaining the rejection, the Examiner admits that Larsen does not teach the second determination step as taught by independent claim 1. *See* Office Action dated July 9, 2008, page 3 (“*Larsen does not explicitly teach making a determination about whether the owner has permission to erase the entire sector in which the partition is located using a rule, where the rule verifies that the write request does not delete data of an owner other than the owner issuing the write request*”). Rather, the Examiner relies upon Appell to teach the

second determination step. *Id*, pages 3-4 (“... *it would have been obvious ... to have implemented the process protection scheme of Appell in the device of Larsen to verify that the owner has permission to erase the entire block in which the partition is located ...*”) [Emphasis Added]. In doing so, the Examiner has mischaracterized the process protection scheme taught by Appell as being equivalent to the second determination as taught by the pending claims. Appellants’ arguments are presented below.

The Examiner has improperly equated the process protection scheme taught by Appell with the second determination step as taught by the pending claims

In maintaining the rejection, the Examiner references Appell as teaching “segregating a memory such that memory can only be written if it belongs to that particular process.” See Office Action dated July 9, 2008, pages 3-4 (citing Appell, column 6 lines 61-68: “*hardware checks determine that the address used by a process is part of the address space assigned to the process, and if the address is outside the level of privilege assigned, then access to addressed information is denied*”). Accordingly, as a means to isolate the address spaces of various processes in a system, the process protection scheme of Appell, at best, verifies access to an address space by an owner as a function of whether *that address space* is part of an address space associated with that owner.

In contrast, the second determination step, as recited by independent claim 1, verifies access to an address space by an owner as a function of whether *one or more other address spaces* within the same sector are associated with that owner. As such, Appell does not teach or suggest the second determination step recited by independent claim 1.

To appreciate the difference between what is taught by Appell and what is taught by the

pending claims Appellants briefly turn to the technical field of the invention. “Flash memory is organized in sectors...” *See Specification*, paragraph [0004]. Further, “the memory space of each sector is divided into memory pages [which are] grouped into partitions or segments ... to store various software modules.” *Id.* As such, “a partition contains all pages of a sector allocated to a given owner” and, accordingly, “several applications may share the same sector.” *Id.*, paragraphs [0004]-[0005] and Figure 1. That different applications may own partitions in a common sector is significant in view of the fact that “a sector defines the unit of erasable memory ... consequently to modify a non-blank area of the sector, for example a partition, the entire sector must be erased.” *Id.*, paragraph [0006]. Accordingly, a write operation performed in a first partition of a sector causes erasure of data stored in a second partition of the same sector. *Id.* The effect of this sector-wide erasure is particularly consequential when the owner performing the write operation in the first partition is different from the owner whose data in the second partition has been erased as a result of the write operation.

In view of the technical field of the invention, the limitation of the second determination step recited in independent claim 1, and the cited prior art reference Appell, Appellants assert that the second determination step is distinguishable as non-obvious from Appell’s process protection scheme. The second determination step involves verifying the owner of the write request for writing data to a partition in a given sector against the ownership of all other partitions in that sector. By performing verification prior to the write operation, independent claim 1 safeguards against the possibility that the sector-wide erasure results in the deletion of data that is stored in another partition of the sector belonging to another owner. In contrast, Appell’s process protection scheme only verifies the owner of the write request against the ownership of the partition being

written to. Accordingly, the owner of the write request is not verified against the ownership of any other partitions than that being written to. As a consequence, in sectors that contain multiple partitions and therefore provide storage for data belonging to multiple owners, the process protection of Appell as applied to flash memory would provide insufficient protection against the loss of data belonging to an owner other than that which issued the write request. As such, the Examiner has mischaracterized the teachings of Appell.

Conclusion

In view of the above, the Examiner has failed to show the presence of all elements in the prior art. Thus, the Examiner has failed to satisfied the requirements of *KSR International Co.*, which requires that the Examiner “articulate the following: (1) a finding that the prior art included each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference; ...” MPEP § 2143(A) citing *KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1739, 75 U.S.L.W. 4289 (2007). Accordingly, the Examiner has failed to show sufficient evidence of *prima facie* obviousness.

B. Rejections of dependent claims 4, 11, and 13

The Examiner rejects pending dependent claims 4, 11, and 13, using a combination of Larsen and Appell with See. *See* Office Action dated July 9, 2008, page 7. The Examiner has not relied upon See to teach the second determination step. Further, a review of See reveals that See is silent to that which Larsen and Appell lack. Because See does not teach or suggest that which

Larsen and Appell lack, the Examiner has not provided sufficient evidence to establish *prima facie* obviousness with respect to the aforementioned dependent claims.

C. Rejection of dependent claim 8

The Examiner rejects pending dependent claim 8 using a combination of Larsen and Appell with Toombs. *Id*, page 8. The Examiner has not relied upon Toombs to teach the second determination step. Further, a review of Toombs reveals that See is silent to that which Larsen and Appell lack. Because Toombs does not teach or suggest that which Larsen and Appell lack, the Examiner has not provided sufficient evidence to establish *prima facie* obviousness with respect to the aforementioned dependent claims.

D. Summary

In view of the above, as the Examiner has failed to show sufficient evidence to support *prima facie* obviousness, the Appellants have carried their burden in showing that the Examiner erred in finally rejecting the claims. *In re Kahn*, 441 F.3d 977, 985-986 (Fed. Cir. 2006) (“On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness”) (emphasis in original) (quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998)); *see also* 37 C.F.R. § 41.37(c)(1)(vii). Accordingly, favorable consideration of the present application is respectfully requested.

Dated: December 17, 2008

Respectfully submitted,

By TS #45,079
Jonathan P. Osha *Thomas Schler*
Registration No.: 33,986
OSHA · LIANG LLP
909 Fannin Street, Suite 3500
Houston, Texas 77010
(713) 228-8600
(713) 228-8778 (Fax)

APPENDIX A

Claims Involved in the Appeal of Application Serial No. 10/581,130.

1. A method to control access to a sector of a flash type memory of an electronic module comprising:
 - receiving a write request to write data to an area of a partition, wherein the partition is located within the sector; and
 - making a first determination about whether an owner of the data to be written has write access to the partition of the sector, and
 - making a second determination about whether the owner has permission to erase the entire sector in which the partition is located using a rule, wherein the rule verifies that the write request does not delete data of an owner other than the owner issuing the write request; and
 - writing the data to the partition when the first determination and the second determination allow the write request to proceed.
2. (Cancelled)
3. The method of claim 1, wherein the owner is granted permission to erase the entire sector if at least one of the following conditions is satisfied: the entire sector belongs to the owner, remaining partitions in the sector not belonging to the owner are blank, and the remaining partitions in the sector not belonging to the owner are marked as erasable.
4. The method of claim 1, wherein the partition is associated with a status, wherein the status is one selected from the group consisting of erasable, blank, and not blank.

5. An electronic module comprising:
 - a FLASH type non-volatile memory comprising a sector, wherein the sector comprises a partition;
 - a set of rules, wherein the set of rules is used to determine whether an owner of data is granted permission to erase the entire sector, wherein a rule in the set of rules verifies that the write request does not delete data of an owner other than the owner issuing the write request;
 - a memory manager, operatively connected to the FLASH type non-volatile memory configured to:
receive a write request to write the data to an area of the partition,
determine whether the owner of the data to be written has write access to the partition and permission to erase the entire sector using the set of rules, and
write the data to the partition when the determination allows the write request to proceed.
6. The electronic module of claim 5, wherein the memory module intercepts all write requests to the FLASH type non-volatile memory.
7. The electronic module of claim 5, wherein the memory manager is configured to access a description of the partition, wherein the description comprises the status of the partition.
8. A card comprising an electronic module according to claim 5.
9. An electronic assembly including a computer program comprising program code instructions to execute the steps of the method according to claim 1 when the program is executed by the electronic assembly.
10. The electronic module of claim 5, wherein the set of rules specifies that the owner is granted permission to erase the entire sector if at least one of the following conditions is satisfied: the entire sector belongs to the owner, remaining partitions in the sector not belonging to the owner

are blank, and the remaining partitions in the sector not belonging to the owner are marked as erasable.

11. The electronic module of claim 7, wherein the status is one selected from the group consisting of erasable, blank, and not blank.
12. The electronic assembly of claim 9, wherein the owner is granted permission to erase the entire sector if at least one of the following conditions is satisfied: the entire sector belongs to the owner, remaining partitions in the sector not belonging to the owner are blank, and the remaining partitions in the sector not belonging to the owner are marked as erasable.
13. The electronic assembly of claim 9, wherein the partition is associated with a status, wherein the status is one selected from the group consisting of erasable, blank, and not blank.

APPENDIX B

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

APPENDIX C

No related proceedings are referenced in II. above, hence copies of decisions in related proceedings are not provided.